

Online Game Addiction, Personality Traits and Mental Health Among Vocational College Students

Ying Gao¹, Lida C. Landicho², Gael Rosales Lopez²

¹Shandong College of Traditional Chinese Medicine, Yantai City, Shandong Province, China

²Lyceum of the Philippines University–Batangas, Batangas City 4200, Philippines

Abstract

The main objective of this study was to explore the relationship between online game addiction, personality traits and mental health of vocational college students. This was a quasi-experimental design, aiming at discovering the interaction between mental health and personality traits, and providing targeted intervention programs for the prevention of online game addiction among vocational college students. The relationship between the degree of online game addiction, mental health level and personality traits of 532 vocational college students was investigated by questionnaire. The study found that male and only child respondents scored significantly higher on online game addiction. Through correlation analysis, it is found that mental health level and neurotic personality are related to online game addiction.

Keywords

Online game addiction, Mental health, Personality traits, Vocational college students.

1. Introduction

Online games are becoming more and more popular around the world, especially in the United States, China, South Korea, Singapore, Japan and other countries (Tang CS et al., 2017). A study found a significant increase in the use of video games among Spanish college students. With the popularity of the Internet and new digital devices, their reduced cost, and lack of parental control, overindulgence is on the rise year by year (Gómez-Galán, J et al., 2021).

As an important subtype of Internet addiction, online gaming disorder (IGD) refers to the impairment of physical, psychological and social functions caused by an individual's uncontrollable, excessive or compulsive playing of online games (Ma N et al., 2017). In the 11th edition of the International Diagnostic Manual of Diseases (ICD-11) released by the World Health Organization in 2018, gaming addiction was officially listed as a new type of addictive mental disorder.

Online games especially appeal to young adults, and these individuals are more likely than other groups to be addicted to games. The prevalence of IGD in adolescents ranges from 0.6% to 19.9% (Brilliant T, D et al., 2019). Among Asian adolescents, the prevalence of IGD was 3.1% in Taiwanese adolescents (Chiu et al., 2018) and 1.8% in Japanese study participants (Nakayama, H et al., 2020). In the United States, problems with Internet use/computer gaming have been reported among 10% of college students and are significantly associated with mental health symptomatology (Stevens, C et al., 2020). In recent years, online game addiction has attracted wide attention from all sectors of society due to its causes of anxiety, depression, risky behavior, violent crime, suicidal behavior, and adolescent personality development and academic development problems (Gundogdu, U., & Eroglu, M., 2022; Varadi-Csema, E., & Cîrmaciu, D., 2019). Research showed that online gaming addiction was associated with mental health and personality traits. The participants of the study were selected from 5,287 young Swiss men (mean age = 25.42 years) from the substance use risk factor cohort. Profiles of family

background, personality, and mental health factors were investigated and their association with seven behavioral addictions (Internet, gaming, smartphones, online dating, gambling, sports, and work) and three substance-use disorder scales (alcohol, marijuana, and tobacco). The study showed that the corresponding prevalence and number of concurrent addictions were highest in the high value of the mental health scale and in the personality patterns dominated by neuroticism. Personality traits and mental health factors were associated with different degrees of susceptibility to addiction (Marmet, S et al., 2018).

In this study, vocational college students are the respondents of the study described as young students who choose to study in higher vocational colleges when they fail to enter the undergraduate colleges in the school selection examination. After two years of study in higher vocational colleges, they will move to internship and employment positions. By integrating technical education and vocational education, vocational education provides a semi-skilled and skilled workforce in competition in the global labor market (Abdullah, N. S et al., 2020). Therefore, vocational college students are a very important team in the national human resources system. Attention should be paid to the current situation of online game addiction among vocational college students. Due to their lower academic performance and self-efficacy in real life, vocational college students are more likely to escape and vent negative stimuli brought by real society through virtual world, thus indulging in virtual games (Lin, M. P., 2022). At present, there are many researches on Internet addiction at home and abroad, but there are few researches on the subject of online game addiction, especially among vocational college students in higher vocational colleges. In the existing relevant research, the research on online game addiction of students in higher vocational colleges has not yet formed a system, which is scattered in some papers, and there are almost no special articles. In addition, the proposed educational countermeasures involve a wide range of areas, not strong pertinence, lack of timeliness.

This study intended to investigate the profile variables of the respondents, as well as the degree of online game addiction, personality and mental health status of the respondents. To explore the relationship between mental health, personality traits and online game addiction in vocational college students, focusing on the correlation between the three variables.

2. Method

2.1. Participants

A total of 532 students from a higher vocational college in Shandong were invited and agreed to participate in the survey. They were selected from a readily available student population using the convenience sampling principle. We only included participants who agreed to informed consent and communicated permission with the student's class counselor before the survey and then completed the entire survey. Questionnaire survey was conducted by using questionnaire star. We included 532 participants. Among them, 148 were male, accounting for 27.8%, and 384 were female, accounting for 72.2%.

2.2. Measures

All subjects were tested with the following 4 questionnaires and scales:

(1) There was a Self-designed questionnaire, including the participants' basic information and online game behavior.

(2) The study used Online Game Addiction Scale which was compiled by Pontes et al., Luo Tao translated the original scale into Chinese and revised it. The Chinese version IGD-20 scale was used in this study, and the klonbach coefficient of the scale in this study was 0.93.

(3) The study used the Big Five Personality Inventory which was a simplified version of the NEO Five Factor Scale compiled by Costa Paul T et al., and the klonbach coefficient of the scale in this study was 0.71.

(4) The study used Symptom Checklist 90(SCL-90) which was widely used abroad and introduced to China in the 1980s. The klonbach coefficient of the scale in this study was 0.98.

3. Data Analysis

All data during the study were statistically analyzed using Excel and spss25.0. Statistical description with $\bar{x} \pm S$, data of the differences between different groups compared with t test and variance analysis. Using Pearson product moment correlation analysis test online game addiction and mental health, personality traits whether there was a significant correlation.

4. Results and Analysis

4.1. Differences on the Respondent's Online Game Addiction when compared According to Profile

Table 1. Differences on the Respondent's Online Game Addiction when compared According to Profile

	Salience		Mood Moderation		Tolerance		Withdrawal		Conflict		Relapse	
	t/F	p-value	t/F	p-value	t/F	p-value	t/F	p-value	t/F	p-value	t/F	p-value
Sex	5.047	.000	3.313	.001	3.369	.001	5.210	.000	4.337	.000	5.551	.000
Grade	-2.51	.012	-.663	.507	-2.383	.018	-1.70	.089	-2.29	.022	-2.37	.018
Place of Residence	.726	.484	1.351	.260	.198	.821	.653	.521	.703	.496	1.693	.185
Study Level	4.393	.013	.366	.694	1.447	.236	1.129	.324	.294	.746	2.744	.065
Only Child	3.394	.001	2.036	.042	2.785	.006	3.546	.000	2.357	.019	3.317	.001
Started Playing	-6.63	.000	-5.848	.000	-6.485	.000	-5.03	.000	-4.67	.000	-6.15	.000
Days Played in a week	-7.28	.000	-8.229	.000	-9.997	.000	-6.79	.000	-4.68	.000	-7.80	.000
time Played in a day	-7.13	.000	-3.248	.001	-7.955	.000	-5.19	.000	-4.04	.000	-4.31	.000

Table 1 shows the comparison of online game addiction scores of respondents grouped by demographics and online game behavior. Results indicate that there were significant differences on the respondent's online game addiction in gender, the only child or not, the duration of playing online games, the days of playing online games in a week, the time of playing online games in a day ($p < 0.05$). Among them, salience, tolerance, conflict and relapse of online game addiction had significant differences in grade ($p < 0.05$). Salience of online game addiction had significant difference in study level ($p < 0.05$).

4.2. Relationship between online game addiction and personality

Table 2. Relationship of the Respondent's Online game Addiction to Personality

	Salience		Mood Moderation		Tolerance		Withdrawal		Conflict		Relapse	
	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value
Agreeableness	-.193**	.000	-.115**	.008	-.172**	.000	-.248**	.000	-.206**	.000	-.259**	.000
Conscientiousness	-.350**	.000	-.153**	.000	-.347**	.000	-.265**	.000	-.255**	.000	-.327**	.000
Extraversion	-.129**	.003	-.098*	.023	-.131**	.002	-.126**	.004	-.079	.070	-.151**	.000
Neuroticism	.172**	.000	.227**	.000	.182**	.000	.103*	.017	.121**	.005	.138**	.001
Openness	-.061	.159	.158**	.000	-.038	.376	-.002	.957	-.049	.258	-.005	.899

Table 2 shows dimensions of online game addiction were significantly negatively correlated with agreeableness, conscientiousness and extroversion ($p < 0.05$), while significantly positively correlated with neuroticism ($p < 0.05$). Mood moderation of online game addiction was significantly positively correlated with openness ($p < 0.05$).

4.3. Relationship between online game addiction and mental health

Table 3. Relationship of the Respondent's Online game Addiction to Mental Health

	Salience		Mood Moderation		Tolerance		Withdrawal		Conflict		Relapse	
	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value
Somatization	.115**	.008	.160**	.000	.187**	.000	.177**	.000	.155**	.000	.115**	.008
Obsessive Symp.	.164**	.000	.166**	.000	.157**	.000	.115**	.008	.168**	.000	.164**	.000
Interpersonal Rel.	.177**	.000	.212**	.000	.217**	.000	.162**	.000	.217**	.000	.177**	.000
Depression	.168**	.000	.161**	.000	.176**	.000	.125**	.004	.148**	.001	.168**	.000
Anxiety	.160**	.000	.146**	.001	.180**	.000	.138**	.001	.170**	.000	.160**	.000
Hostility	.117**	.007	.176**	.000	.236**	.000	.184**	.000	.221**	.000	.117**	.007
Terror	.070	.107	.151**	.000	.184**	.000	.119**	.006	.173**	.000	.070	.107
Paranoid	.154**	.000	.182**	.000	.229**	.000	.178**	.000	.226**	.000	.154**	.000
Psychosis	.198**	.000	.203**	.000	.232**	.000	.191**	.000	.239**	.000	.198**	.000
Others	.160**	.000	.197**	.000	.215**	.000	.202**	.000	.187**	.000	.160**	.000

Table 3 shows that dimensions of online game addiction were significantly positively correlated with the dimensions of mental health except terror ($p < 0.05$). Mood moderation, tolerance, withdrawal and conflict of online game addiction was significantly positively correlated with terror ($p < 0.05$).

5. Relationship Between Personality and Mental Health

Table 4. Relationship of the Respondent's Personality to Mental Health

	Agreeableness		Conscientiousness		Extraversion		Neuroticism		Openness	
	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value
Somatization	-.279**	.000	-.320**	.000	-.228**	.000	.370**	.000	-.061	.162
Obsessive Symp.	-.146**	.001	-.357**	.000	-.308**	.000	.598**	.000	-.024	.585
Interpersonal Rel.	-.223**	.000	-.383**	.000	-.322**	.000	.608**	.000	-.060	.169
Depression	-.222**	.000	-.401**	.000	-.392**	.000	.607**	.000	-.090*	.038
Anxiety	-.219**	.000	-.343**	.000	-.314**	.000	.537**	.000	-.028	.522
Hostility	-.297**	.000	-.345**	.000	-.204**	.000	.487**	.000	-.013	.757
Terror	-.135**	.002	-.322**	.000	-.299**	.000	.440**	.000	-.102*	.019
Paranoid	-.295**	.000	-.330**	.000	-.274**	.000	.472**	.000	-.007	.875
Psychosis	-.245**	.000	-.376**	.000	-.297**	.000	.515**	.000	-.016	.705
Others	-.214**	.000	-.292**	.000	-.259**	.000	.451**	.000	.011	.793

Table 4 shows that the mental health of vocational college students was correlated with the sub-dimensions agreeableness, conscientiousness, extroversion and neuroticism. Specific analysis showed that dimensions of mental health were significantly negatively correlated with agreeableness, conscientiousness, and extroversion ($p < 0.05$), and were significantly positively correlated with neuroticism ($p < 0.05$). Depression and terror of mental health were significantly negatively correlated with openness ($p < 0.05$).

6. Discussion

6.1. Demographic characteristics such as gender and only child had significant effects on predicting online game addiction in higher vocational colleges

The online game addiction score of boys was significantly higher than that of girls. Supported by the previous study. A study examined the role of gender between online gaming addiction in Australia and the United States. The results showed that, hyperactive, impulsive, and inattentive males in the United States exhibited higher levels of gaming disorders (Stavropoulos, V et al., 2019). Boys are more likely to be addicted to online games, which may be related to the following factors. First of all, boys are curious and adventurous, girls are relatively conservative. It was clearly demonstrated that many boys prefer exciting pictures, interesting stories and cool actions in online games, and the real world is boring. Secondly, boys are more independent, while girls are relatively more dependent. Boys do not easily cry and lack effective communication with other members of society. Therefore, boys may tend to use online games to vent their negative emotions. Finally, boys tend to be more active thinking and poor self-control and spend more time in online games and become addicted.

It was also found out that the online game addiction score of the only child was significantly higher than that of the non-only child. Most of the only child comes from urban families, and their material resources and quality of life are relatively good. They have a computer and can have access to online games at any time. In addition, in terms of interpersonal communication, compared with the non-only child, the only child is more likely to adapt poorly due to setbacks in life and interpersonal relationship. The only child chooses to play online games to get comfort. The behavior habits gradually evolved into online game addiction with the passage of time.

6.2. Online game behaviour played a significant role in predicting online game addiction

Another notable result is about the online gaming behavior. Based on the result, it was revealed that the longer the exposure to online games, the more likely to appear online game addiction. This is consistent with previous research. A study in Turkey was conducted to explore digital game addiction among adolescents and its influencing factors. It found that male adolescents who started playing video games before the age of 6, who were unrestricted and unsupervised, who played 10 hours a day, who played video games on the computer, and who did not participate in any other activities were among the groups most at risk for addiction (Kaya, A., & Pazarcıklı, F., 2023).

In the previous study, It was found out that long-term addiction to online games affected the available time, resulting in a decline in academic performance, academic failure and other problems (Hawi, N.S et al., 2018). A survey of gaming addiction and sleep quality among the general population in Pakistan found that among 618 participants, gaming addicts reported significantly worse subjective sleep quality, more severe sleep disturbances, shorter sleep duration, and greater daytime dysfunction compared to non-gaming addicts (Zaman, M et al., 2022). Therefore, it is necessary to adopt appropriate intervention methods to control the time of vocational college students playing online games, get rid of the extreme dependence on online games, and reduce the damage of online game addiction to individual physical, psychological and social functions.

6.3. There was a correlation between online game addiction and mental health and personality traits of vocational college students

This study found that all the 10 factors of SCL-90 were significantly correlated with online game addiction. The correlation between online game addiction and mental health had been well documented in previous studies. People who were addicted to games were positively

associated with social anxiety, depression, and loneliness (Wang, J.L et al., 2019). Online game addicts were more likely to have depression, anxiety, social fear, and coercion than healthy people (Bonnaire et al., 2018; Y Bengu et al., 2018; Ostinelli, E.G et al., 2021). Online games can help students with various interpersonal relationship problems increase social connection and enhance the sense of belonging, which can lead to online game addiction (Chen et al., 2020 ;Milani L et al., 2018). Online game addiction is associated with possible psychopathological symptoms (Fava M et al., 2017).

When vocational college students study in school, the relationship between classmates is not as close as in middle school, unfamiliar environment and learning pressure may produce psychological problems. The virtual space provided by online games naturally supplements the deficiency of reality. Games may be an escape strategy and coping mechanism for them to relieve psychological problems and escape from worries and difficulties in reality (Yen et al., 2019). Introverted and paranoid students are more solitary in real life, online games can make up for their spiritual needs, leading to their addiction to the Internet. The fear of the real environment easily makes vocational college students seek security and spiritual sustenance in the virtual world such as games.

Another notable result is that respondents who scored high on neuroticism had a higher tendency of online game addiction than those who scored low. The correlation between online game addiction and personality traits has been supported by a series of studies. Reyes, M.E.S et al. (2019) studied a large number of Filipino game players and found that neuroticism was positively correlated with pathological game behavior, while openness, extroversion, agreeableness and conscientiousness were negatively correlated with pathological play behavior. De Hessel, L. C et al. (2020) studied the relationship between gaming motivation, gaming time and the big five personality traits and found that more pleasant, outgoing, and conscientious players tended to spend less time playing games.

As a factor that affects the stability of individual psychology and behavior, personality has become a hot spot for researchers to explore the influencing factors of specific network behaviors. Adolescents with high agreeableness will have better social support and are willing to experience life in a comfortable interpersonal and natural environment, which reduces the possibility of Internet addiction. Highly extroverted individuals tend to choose to experience real life events rather than virtual events, so they are not prone to online game addiction behavior. Conscientious people are more organized and willing to engage more in real life to achieve personal goals. This may be a protective factor against online game addiction. Neurotic people may use games to suppress or prevent negative emotions and become addicted to online games.

According to the mental health level and personality characteristics of vocational college students, effective prevention and guidance may be carried out, especially the growth of neurotic students. Emphasis may be placed on strengthening their interpersonal communication ability and communication skills to keep them away from the harm of online game addiction and grow up actively and healthily. This study can better prevent online game addiction of vocational college students, guide vocational college students to use online game more scientifically and rationally, and carry out more effective intervention for vocational college students with symptoms of online game addiction.

References

- [1] Abdullah, N. S., Sumarwati, S., & Abd Aziz, M. I. (2020). Life and career skills among technical and vocational education and training (TVET) students in vocational colleges. *Online Journal for TVET Practitioners*, 5(2), 20-26.

- [2] Brilliant T, D., Nouchi, R., Kawashima, R., 2019. Does video gaming have impacts on the brain- Evidence from a systematic review. *Brain Sci.* 9 (10), 251.
- [3] Bonnaire C,Baptista D.(2018).Internet gaming disorder in male and female young adults:The role of alexithymia,depression,anxiety and gaming type[J].*Psychiatry Research*,272:521-531.
- [4] Chiu, Y.-C., Pan, Y.-C., Lin, .Y.-H.(2018). Chinese adaptation of the Ten-Item Internet Gaming Disorder Test and prevalence estimate of Internet Gaming Disorder among adolescents in Taiwan. *J. Behav. Addict.* 7 (3), 719–726.
- [5] Costa Paul T., McCrae Robert R.(1992). Four ways five factors are basic. *Personality and Individual Differences*,13(6).
- [6] Chen Yijian, Huang Shihua, Zhou Qing'an, Yu Chengfu, Wang Yuanrui & Gong Wenjin.(2020). The interaction between freshmen boredom tendency, interpersonal relationship trouble and online game addiction. *Medicine and Society* (07), 90-93.
- [7] De Hesselde, L. C., Rozgonjuk, D., Sindermann, C., Pontes, H. M., & Montag, C. (2021). The associations between Big Five personality traits, gaming motives, and self-reported time spent gaming. *Personality and Individual Differences*, 171, 110483.
- [8] Fava, M., Mischoulon, D., Heo, J.-Y., Jeon, H.J.(2017) Internet game addiction, depression, and escape from negative emotions in adulthood: A nationwide community sample of korea.*J.Nero.Ment.Dis*,205,568-573.
- [9] Gómez-Galán, J., Lázaro-Pérez, C., & Martínez-López, J. Á. (2021). Exploratory study on video game addiction of college students in a pandemic scenario.
- [10] Gundogdu, U., & Eroglu, M. (2022). The relationship between dissociation symptoms, sleep disturbances, problematic internet use and online gaming in adolescents. *Psychology, Health & Medicine*, 27(3), 686-697.
- [11] Hawi,N.S.,Samaha M.,& Griffiths M.D.(2018).Internet gaming disorder in Lebanon:Relationships with age, sleep habits, and academic achievement. *Journal of Behavioral Addictions*,1,70-78.
- [12] Kaya, A., & Pazarcıkcı, F. (2023). Structural equation modeling analysis of risk factors for digital game addiction in adolescents: A web-based study. *Archives of Psychiatric Nursing*, 43, 22-28.
- [13] Lin, M. P. (2022). Avoidance/emotion-focused coping mediates the relationship between distress tolerance and problematic Internet use in a representative sample of adolescents in Taiwan: One-year follow-up. *Journal of Adolescence*, 94(4), 600-610.
- [14] Marmet, S. , Studer, J. , Rougemont-Bücking, Ansgar, & Gmel, G. . (2018). Latent profiles of family background, personality and mental health factors and their association with behavioural addictions and substance use disorders in young swiss men. *European Psychiatry*, 52, 76-84.
- [15] Milani L,Torre G L,Flore M,et al.(2018).Internet gaming addiction in adolescence: risk factors and maladjustment correlates[J].*Int J Ment Health Ad*,16(4):888-904.
- [16] Ma N, Zhang W, Yu CF, et al.(2017).Perceived school climate and Online gaming barriers among Junior high school students: a moderated mediating effect model.*Chinese Journal of Clinical Psychology*, 25(1): 65-69+74
- [17] Nakayama, H., Matsuzaki, T., Mihara, S., Kitayuguchi, T., Higuchi, S., 2020. Relationship between problematic gaming and age at the onset of habitual gaming. *Pediatr. Int.* 62 (11), 1275–1281.
- [18] Ostinelli,E.G.,Zangani,C.,Giordano,B., et al.(2021)Depressive symptoms and depression in individuals with Internet Gaming Disorder:a systematic review and meta-analysis.*Journal of Affective Disorders*,284:136-142.

- [19] Pontes, H. M., Kiraly, O., Demetrovics, Z., & Griffiths, M. D. (2014). The conceptualisation and measurement of DSM-5 Internet Gaming Disorder: The development of the IGD-20 Test. *PloS one*, 9(10), e110137.
- [20] Reyes, M.E.S., Davis, R.D., Lim, R.A.N.N., Lim, K.R.S., Paulino, R.F., Carandang, A.M.D., & Azarraga, M.G.S. (2019). Five-factor model traits as predictors of pathological gaming among selected Filipino gamers. *Psychological Studies*, 64(2), 213-220.
- [21] Stevens, C., Zhang, E., Cherkerzian, S., Chen, J.A., Liu, C.H., 2020. Problematic internet use/computer gaming among US college students: prevalence and correlates with mental health symptoms. *Depress. Anxiety* 37 (11), 1127–1136.
- [22] Stavropoulos, V., Adams, B. L., Beard, C. L., Dumble, E., Trawley, S., Gomez, R., & Pontes, H. M. (2019). Associations between attention deficit hyperactivity and internet gaming disorder symptoms: Is there consistency across types of symptoms, gender and countries?. *Addictive Behaviors Reports*, 9, 100158.
- [23] Tang CS, Koh YW, Gan Y. Addiction to internet use, online gaming, and online social networking among Young adults in China, Singapore, and the United States. *Asia-Pac J Public Health* 2017; 29(8): 673–82.
- [24] Varadi-Csema, E., & Cîrmăciu, D. (2019). The risk factor of criminality-gambling and problematic game use.
- [25] Wang, J.L., Sheng, J.R., & Wang, H.Z. (2019). The association between mobile game addiction and depression, social anxiety, and loneliness. *Frontiers in Public Health*, 7, 247.
- [26] Y Bengu, uzer Ahmet. (2018) The relationship between Internet addiction, social anxiety, impulsivity, self-esteem, and depression in a sample of Turkish undergraduate medical students [J]. *Psychiatry Research*, 267:313-318.
- [27] Yen, J.-Y., Lin, H.-C., Chou, W.-P., Liu, T.-L., & Ko, C.-H. (2019). Associations among resilience, stress, depression, and internet gaming disorder in young adults. *International Journal of Environmental Public Health*, 16(17), 3181.
- [28] Zaman, M., Babar, M. S., Babar, M., Sabir, F., Ashraf, F., Tahir, M. J., ... & Pakpour, A. H. (2022). Prevalence of gaming addiction and its impact on sleep quality: A cross-sectional study from Pakistan. *Annals of Medicine and Surgery*, 78, 103641.